

**Pack for paper handkerchiefs with a convenient and hygienic dispensing**

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**Field of Invention**

The invention relates generally to pack of paper tissues or handkerchiefs.  
10 More specifically, the invention describes a pack of paper handkerchiefs that provides hygienic protection of the handkerchiefs in the pack while allowing for easy, convenient dispensing of the handkerchiefs.

**Background of the Invention**

15 The use of paper handkerchiefs has become increasingly popular over the years. Paper handkerchiefs are usually sold as pocket packs or tabletop boxes. The present invention is directed primarily to packs of paper handkerchiefs that are intended to be carried in one's pocket or purse or bag. Such packs are usually of parallelepipedic shape with dimensions of about 110mm x 55mm x  
20 20mm, although a significant variation around these observed dimensions can be found. In general, such packs are usually intended to carry between 5 and 15 single tissues or handkerchiefs.

Paper tissues and handkerchiefs are generally intended for single use. They are in most instances used to collect nasal fluid expelled from the human  
25 nose. However, more broadly, paper handkerchiefs are also used to collect and absorb other fluids such as tears, sweat, or even used as a cleaning aid to wipe and/or absorb splashes or liquid stains from a variety of substrates.

Numerous pack designs are intended to allow a easy access to the paper handkerchiefs as well as a satisfactory protection of the tissues inside the pack.  
30 However, previous attempts have been limited by cost, complexity or technical constraints during the manufacture of the packs (for example, the use of a single initial piece of material). Furthermore, in most cases the attempts have resulted

in the minimization of the size of the dispensing orifice in order to protect unused tissue inside the packs. This hygienic consideration has been detrimental to the convenience of use: grabbing the tissue inside the pack is an operation that may be uneasy to some of the users. Further, the grabbing and dispensing may be  
5 just un-achievable in extreme conditions (e.g. wearing gloves, rigidity of the finger articulation due to cold, etc.) or un-achievable to people with reduced finger or hand mobility or visual impairment.

Because packs of paper handkerchiefs are often carried around in a pocket, bag or purse, it would be desirable to provide a package that is flexible,  
10 yet resistant to deformation to the point it becomes unusable.

Further, it would be desirable for such a package to protect the handkerchiefs from contamination after the first use of the pack and its first opening.

Furthermore, it would be desirable to provide a package that is easy to  
15 open and from which the contents are easily removed.

It would also be desirable to provide a pack offering a dual dispensing capability: dispensing of a folded tissue or dispensing of a tissue that unfolds automatically while being removed from the pack.

## 20 Summary of the Invention

The present invention describes a pack generally used for storing a stack of paper handkerchiefs or tissues. The invention presents the advantages, separately or together, of enhancing both the protection of the handkerchiefs and the convenience of dispensing of the handkerchiefs. The invention also presents  
25 the possible advantage of proposing a pack that has an enhanced stability, further increasing its convenience to use. The pack of the proposed invention allows for a dual dispensing of the tissues: dispensing of folded tissue or dispensing of tissues automatically unfolding during the dispensing. The pack is also conveniently used in extreme conditions or by people having reduced finger  
30 mobility.

The present invention presents a pack of paper handkerchiefs having long, intermediate and short edges, the long edges being longer than said

intermediate edges, the short edges being shorter than the intermediate edges. The pack also includes a dispensing orifice delimited by a peripheral edge and a closure means covering at least said dispensing orifice and having a connected peripheral portion and an unconnected peripheral portion. The closure means is permanently connected to the pack by the connected peripheral portion and extends beyond the peripheral edge of the dispensing orifice by about 2mm or more along the unconnected peripheral portion of the closure means.

#### Brief Description of the Drawings

10           Figure 1 is a general overview of a pack of paper handkerchiefs.

          Figure 2 shows a paper handkerchief, presented laying substantially flat and unfolded.

          Figure 3 shows one embodiment of a folded paper handkerchief. Many other folding configurations are possible.

15           Figure 4 and Figure 5 each represent one particular pack of the present invention. In Figure 5 a tissue is represented inside the pack.

          Figure 6 represents a pack of tissue and more particularly highlights the construction of the reseal tape according to one embodiment of the present invention.

20           Figure 6a shows a detailed view of the reseal tape.

          Figure 7 shows a particular embodiment in which a secondary piece of material forms the peripheral edge of the dispensing orifice and the overlap.

          Figure 7a shows a particular view of the pack of Figure 7.

25           Figure 8 shows a particular embodiment of the invention in which the closure means, in the form of a flap, comprise a portion having reseal functionality.

          Figure 9 shows a pack of the present invention having no end panels, the front and back panels being joined together to seal the ends of the pack. The pack of Figure 9 is not a fully parallelepipedic pack but has long, intermediate and short edges.

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Figure 10 shows a particular embodiment of the invention, with a specific shape of the closure means and dispensing orifice, the overlap and a particular shape of the reseal tape.

## 5 Detailed Description of the Invention

### Definitions:

For the purpose of the present invention, the following terms and wording are used interchangeably, and with the same meaning:

10 Grip zone, grip edge, dry zone or dry edge.

Handkerchiefs, paper handkerchiefs or tissues.

Film, flexible film, wrapping material.

Pocket pack, pack or container for tissues - to describe a receptacle for tissues/handkerchiefs.

15 Flap or closure means - to describe the piece(s) of material covering at least partially the dispensing orifice.

Dispensing orifice, orifice or dispensing aperture.

Overlap or overhang - in the present invention both describe a part of the flap that covers part of a pack panel in additional to covering the dispensing  
20 orifice.

Figure 1 shows front panels 1 defined as the panel of largest area. A pack has two front panels. For simplicity in this document, the reference to "the" front panel of the pack indicates the one panel comprising the dispensing orifice or part of it. The side panels 2 are defined as the panels having an intermediate  
25 size (area) between the front and the end panels. A pack generally has two side panels. The end panels 3 are defined as the panels of smallest area. A pack has two end panels.

The long pack edges 4 are defined as the edge between two front panels and corresponding to the longest edge of the pack. A pack generally has four  
30 long edges. The intermediate pack edges 5 are defined as the pack edges between a front and a side panel and corresponding to the edges of intermediate length between the long and the short edges. A pack generally has four

intermediate edges. The short edges 6 are defined as the shortest pack edges and corresponding to the edges linking a side and a end panel. A pack generally has four short edges.

5 The flap or closure means 7 is a piece of material movable between a closed and an open position, and able to cover at least partially the dispensing orifice. The flap articulates around a hinge 11 that is connected to a pack panel or pack edge. The periphery of the closure means 7 then has a "connected portion" (articulating around a hinge 11) and an "unconnected portion" 18. The unconnected peripheral portion 18 is not permanently connected to the pack.

10 The dispensing orifice 8 is the aperture through which the tissues can be grabbed and possibly removed from the pack during the dispensing operation.

The reseal tape 9, or reseal piece 9, is a piece of material able to lock the flap in the closed position and re-open at the users need to enable the dispensing operation. The reseal tape 9 can be a separate piece of material as in  
15 Figs. 1 and 10, for example, or a piece of the closure means (flap) as in Figure 8. The reseal tape bridges the flap and a front panel. It is usually, but not always, quasi permanently glued and sealed to the flap and comprises an adhesive surface able to stick in a temporary manner onto the front panel. The reseal piece or reseal tape can have various design (Figures 1 and 10).

20 The grip zone 10 of the reseal tape 9 (also called dry zone or dry edge) is generally free of any adhesive on its outer surface and enables the user to grab the reseal tape and operate it.

The seal 20 of the front and back panels in the embodiment of Figure 9. In this embodiment, no end panels are present but the front and back panels are  
25 joined together by the seal 20 to seal the pack.

Alternative possible embodiments of the present invention, in particular Figures 4 and 10 show a specific design of the closure means 7, of the dispensing orifice 8, of the reseal tape 9 and of the grip zone 10.

In Figure 9, a pack of the present invention is shown that is not a  
30 parallelepipedic pack: the pack has no short edges nor end panels. The front and back panels are joined together in a sealing zone 20. The pack has long edges 4, intermediate edges 5, and short edges 6.

Overlapping closure mean

Some functions of the closure means or flap of the subject pack are to allow for protection of to the tissues inside the pack and/or to allow for a convenient opening and re-closure operation. In most currently marketed products, the flap barely covers the dispensing orifice. In most cases, the tearing of a pre-perforated line in the pack material creates the flap. No overhang of the flap extending over the dispensing orifice is provided. Also, very often, the pressure of the folded tissues inside the pack (on the internal face of the pack) is sufficient to actually not allow the flap to cover entirely the dispensing orifice after the first opening of the pack. Only after the removal of the second or third tissue from the pack can the flap, associated with the flexibility of the pack material, be brought in coincidence with the edge of the orifice.

A large flap covering all the dispensing orifice and extending over it to create an overlap on one of the panel is beneficial for the protection of the tissues inside the pack. However such a large overlap implies additional and significant material cost and also presents the technical difficulty of requiring a particular process and-or a secondary material providing for the flap or overlap. WO98/06369 uses for that purpose an additional piece of material whereas EP 0553 660 creates a Z-fold in the material to create the overlap. DE 35 42 999A1 uses an over-dimensioned reseal tape for that purpose.

It has been surprisingly found in the present invention that a very large overlap is not needed to leverage the desired hygienic benefits. On the contrary, the inventors have found that an overlap of at least about 2mm is sufficient for the hygienic protection of the tissues. An overlap of about 5mm or more is also suitable as are overlays of about 10mm or more and about 20mm or more. An overlap of less than about 2mm around the edge of the orifice may not provide for good protection of the tissues, allowing dust or other unwanted bodies to get in contact with the tissues. It has been found that the usage conditions can trigger in this case a folding of the flap, which can expose the tissues to the environment, thus permitting contamination.

The overlap dimension can also be limited in its maximum dimension primarily to further enhance convenience (i.e. avoid unwanted fold of the flap in use) and to reduce the cost of the material. The flap could cover the entire front panel, however, it has been found that the maximum dimension of the overlap is most suitable when less than about 30mm, less than about 20mm or less than about 10mm is provided.

Similarly, it has been found that the overlap is preferentially present around the entire periphery of the dispensing orifice to ensure protection (i.e. along the entire unconnected peripheral portion 18 of the closure means 7).

Along the unconnected peripheral portion 18 of the closure means 7, it has been found that, an overlap of about 2mm or more provides sufficient protection of the content of the pack. The overlap (overhang) is measured radially from the edge of the dispensing orifice (in any straight portion of the edge of the dispensing orifice, the overlap is measured perpendicularly to that edge).

It has been found that the overlap of the flap on to a panel creates a zone of increased structural resistance in the pack when closed. This property can provide an increased shape stability of the pack during the transportation in bag or pocket, without creating unnecessary rigidity. That quality has been found highly appreciated by the consumers.

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#### Size, position and shape of the dispensing orifice:

European patent application EP 01129421 describes a dispensing orifice of a particular shape allowing for very good dispensing while protecting the tissues.

It has been found that particular and different shape and positioning of the dispensing orifice may offer similar or even enhanced benefits. That particular execution is shown in Figure 5. It combines the benefits of an oval centrally located orifice on the front panel with the convenience of the grabbing of the tissue by the edge. Located centrally, the major part of the orifice is easy to spot and reach, even with gloves or by impaired people. Extending up and including part of a long pack edge, the orifice allows a user to grab a tissue from the side,

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which is in some cases more desirable (for example people with reduced finger mobility elderly people).

The substantial extension of the orifice in a direction parallel to the long edge of the pack brings additional convenience. It has been found that the relative proximity of the dispensing orifice to the pack edge provides for easier dispensing. It is possible, but not essential, that the peripheral edge of the dispensing orifice coincides with pack edge. However, the flexibility provided by the tissue inside the pack and by the nature of the packing film allows for a certain distance between the peripheral edge of the dispensing orifice and the pack edge. Preferably that distance should not be greater than about 6mm, about 3mm, or about 0mm.

It has also been found that orifice dimension can be optimized. If too large, the orifice may increase the risk of contamination; if too small the orifice may not allow for a convenient tissue dispensing. Suitable dimensions measured in terms of surface area, have been found to be between about 500 and about 3000 square millimeters (sqmm), between about 700 sqmm and about 2500 sqmm, between about 1000 sqmm and about 2000sqmm, or between about 1200sqmm and about 1800sqmm.

Figures 4 and 5 describe two possible combinations of a flap overlapping the front panel and are preferred dispensing orifice size, location and shape, according to the present invention.

#### Folding of the tissues inside the pack

Selecting an appropriate folding of the tissue and orientation inside the pack can further enhance the dispensing convenience.

Tissues, usually substantially rectangular, have two surfaces and four tissue edges. The tissues are generally folded in a way that creates one area with multiple free tissue edges and one area presenting a U-fold. In a U-fold area, no tissue free edge is present parallel to the U-fold.

It has been found that a tissue edge coinciding with the dispensing orifice and preferably extending transversally to the primary direction of the opening (for example the longest axis of the substantially oval opening in Figure 5), enhances



the convenience of use. In such a configuration, the user is able to slip his finger (even covered by a glove) under the tissue edge 12. The user has then an easy grab of the tissue and a facilitated removing of the tissue from the pack by a simple movement of translation in a direction substantially orthogonal to the general plane of the front panel. In the same movement the user can unfold the tissue, still using a single hand (this operation is referred to as “unfolded dispensing”).

Additionally it has been surprisingly found that the convenience of the “unfolded dispensing” can be further improved. When the folding of the tissue in the pack is made in such a way that the user can fit a finger under the tissue edge (and grab the tissue) coming from the left side, it has been shown most of the users recognize a significant additional convenience. Statistically most users grab the pack of tissue with their right hand while grabbing the tissue with their left hand. A configuration providing an open-grip of the tissue on the left side may therefore be preferred.

In another embodiment of this invention the folded tissues are positioned inside the pack in such a way that no tissue free edge 12 having a direction substantially parallel to a pack long edge coincides with the dispensing orifice along the hinge zone of the flap. In other word, only tissue U-folds 13 appears thru the dispensing orifice edge along the flap hinge. This particular configuration allows one to grab and remove a full tissue in one movement without having the tissue unfolding during the said movement. This feature is also called “folded dispensing”.

## Dual dispensing

By combining two of the above features the pack of Figures 4 or 5, with the tissues appropriately folded inside, allows for both “folded dispensing” and “unfolded dispensing” together, giving more choice and convenience to the user. This property is referred to as “dual dispensing”.

Figure 5 shows a pack with a tissue folded inside. The tissue edge 12 appears through the dispensing orifice and can be grabbed by the user. Alternatively the user can grab the U-fold 13 to remove the tissue from the pack.

### Reseal tape with a U-folded dry zone

The non-permanent closure of the flap over the front panel is, in one embodiment of the present invention, secured via the use of a reseal tape 9 presenting a dry zone 10. The dry zone allowing a good grip of the reseal tape, is made by a same piece of tape that is folded on itself in a U-fold 16. The internal faces of the U-folded 16 dry zone 10 are sealed together.

The dry zone part of the reseal tape is more rigid, in comparison to a regular, single layer, non U-folded reseal tape. It is been found that the above described construction of the reseal tape 9 presents a much better convenience of use and an easier grip of the dry zone 10 by the users, more particularly by those users with impaired finger mobility or in extreme conditions (wearing gloves, cold fingers, etc).

The reseal functionality of the present invention can be achieved by a separate piece of material. Alternatively the closure means or flap can comprise an extension having reseal functionality, as shown in Figure 8. A dry-edge or grip zone can be provided as well as adequate adhesive to enable the reseal of the flap.

The reseal functionality can be provided by adequate adhesive on the reseal tape of the reseal zone. The adhesive may be located along the entire unconnected portion of the peripheral edge of the closure means or any portion thereof.

### Process of making:

Another aspect the present invention relates to the process of making a pack of paper handkerchiefs. The problem of creating a pack according to the present invention is to provide for the overlapping zone between the flap and the front panel. The present invention solves this problem by at least two methods for achieving the desired overlap.

### One unique wrapping material

In a first embodiment, a piece of primary material, generally a soft flexible plastic film, is cut and folded and sealed in a way that creates the flap overlap. If compared to a non overlapping flap option, the original material should be of increased dimensions. Rolls of material with increased width generally provide the extended dimension. The comparatively increased material provides for sufficient area to create the overlapping flap. By cutting a piece of material having a larger width, the folding can be adjusted to create an overlap of at least about 5mm between the flap and the front panel. Optionally a reseal tape is added to the flap, with the permanent sealing to the flap and the non-permanent/closable adhesive facing the front panel. This execution has the benefit to represent a relatively simple solution to the problem but is technically complex, as it requires in most instances a production line able to handle raw materials of increased width. Selecting the right cutting and folding configuration in order to achieve the desired overlap, preferably along the entire periphery of the dispensing orifice, requires visualizing and understanding the desired benefits.

#### A secondary material

In a second embodiment, a secondary piece of material is used. During the manufacturing process, a step of cutting and attaching or joining the secondary material onto the primary material is additionally foreseen. Such process steps can occur before, during or after the formation of the 3-dimensional pack by folding. In certain embodiments, it may be preferred that the cutting and attaching steps be executed before the folding, i.e. the secondary material is attached on a substantially flat primary material.

In one alternative embodiment, the secondary material is preferably the same material as the primary material. As previously described the overlap creates a zone of high stability in the pack, helping it shape to remain stable during use and transportation. It is however contemplated, in another embodiment, to use a secondary material of higher strength, higher caliper or higher rigidity in order to increase further the gain in pack stability created by the

overlap. The secondary material can be sealed to the side of the primary material forming the outside or the inside of the pack.

In another embodiment, the secondary piece of material 17, once in place on the newly formed pack forms a flap 8 that is hingedly connected to one of the panels 1, preferably along a pack edge 11. More preferably the hinge is parallel to a long pack edge and can be substantially co-located with a long pack edge. One can foresee that the hinge has substantially the same dimension as the long pack edge, thus maximizing the dimension of the flap.

In another embodiment of the present invention, shown in Figure 7, the secondary piece of material 17 constitutes the edge of the dispensing orifice. Preferably a hole is cut out of the secondary material. The secondary material 17 is positioned and sealed onto the primary material, for example onto the front panel 1. A selected area of the primary material forms the flap 7 whereas the secondary material forms the portion of the panel overlapping the flap as well as the dispensing orifice 8 per se.

Example:

In the above-described embodiments (in particular Figures 4, 5, 7, 8, 9, 10) of possible pack configuration of the present invention, the material (primary and secondary material where applicable) is a soft flexible film having the characteristics suitable for the standard manufacture of handkerchief packs. For example the film can be a polyethylene/polypropylene film having a thickness between about 25 and about 50 micrometers and able to be thermo-sealed at a temperature in the range of about 120-200 degrees Celsius. The sealing operations are executed by a combination of thermo sealing and gluing. The reseal tape is polypropylene material with a permanent adhesive in one end and a reseal able adhesive on the other end. The tissues can be of any commonly used material for making paper handkerchiefs (such as Tempo®) and their folding can be as shown in Figure 3 or in the referenced documents. All other operations are as commonly practiced by paper handkerchief manufacturers and packers.

All documents cited herein are, in relevant part, incorporated herein by reference; the citation of any document is not to be construed as an admission that it is prior art with respect to the present invention.

5 While particular embodiments of the present invention have been illustrated and described, it would be obvious to those skilled in the art that various other changes and modifications can be made without departing from the spirit and scope of the invention. It is therefore intended to cover in the appended claims all such changes and modifications that are within the scope of this invention.